Telemedicine -- Health Care Business Process Reengineering

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This paper provides a framework for implementing Telemedicine using Business Process Reengineering (BPR) methodology and tools. The practice of medicine using electronic communication is Telemedicine. Telemedicine enhances the national health care initiatives such as global research, development, and deployment of sophisticated communication, management and imaging network systems. Telemedicine will become an integral part of patient care activities.

BACKGROUND

For the past several years, the American people have expressed concern about the current health care system. Health care in the United States of America is in the midst of a major transition. While the nation is facing the challenge of deficit reduction, redefining its foreign policy at the end of the cold war, and re-vitalizing the economy, the nation focuses on the health care industry. Telemedicine is an emerging technology that will provide fundamental changes essential in developing a cost effective, high quality delivery system that will serve the nation's needs. Telemedicine will be responsive to future challenges and demands for change.

BUSINESS PROCESS REENGINEERING CONCEPTS

The implementation of Telemedicine will require health care delivery BPR to facilitate the rethinking and redesigning of the functions, structure, and culture of an organization to achieve major improvements in cost, quality, service, and speed. Medical informatics will play a vital role in taking a systematic approach of using information technology to provide health care industry solutions. Several health care management consulting surveys estimate that on a national basis annual cost reductions of more than $36 billion are possible through the effective use of information technology. The main objectives of BPR are as follows:

- Develop new business processes that support and improve the delivery of services
- Continually evaluate the enterprises' structure and operations to achieve more responsive systems
- Develop long-range plans to support the business goals of the organization
- Continually evaluate the enterprises' structure and operations to achieve more responsive systems
- Address telemedicine implementation activities such as policies, licensure, and regulation issues

TELEMEDICINE TRENDS

Telemedicine includes the following functional areas: Tele-cardiology; Tele-dentistry; Tele-dermatology; Tele-optomology; Tele-pathology; Tele-preventive Medicine; Tele-radiology; and Tele-surgery. The values of Telemedicine include, but are not limited to the following:

- Increased access, reduced cost to health care
- Tele-consulting, medical training, and home care
- Less infrastructure required and lower cost

TECHNOLOGY INNOVATIONS

The decreasing cost of computer technology and advances in telecommunications impact the health care industry. Health care providers, in particular, have been affected by these changes as increasingly sophisticated technologies are required to provide services. Faced with the continuing proliferation of technological and conceptual choices, health care organizations and information technology providers need to develop plans to help chart their future course. The following technology innovations will facilitate the application of Telemedicine:

- Multimedia - video, audio, images, graphics, standards, and interoperability
- Advanced communications -- high bandwidth, intelligent network, resolution, compression, and time
- Information superhighway -- Fiber optics, Satellite technology
- Virtual Reality, simulation, and Tele-library
- Expert systems

DOCUMENT ORGANIZATION

This paper consists of four sections and several appendixes, summarized in the following paragraphs: Section 1, General, defines the purpose of Health Care BPR, provides the overview and contains the Telemedicine assumptions. Section 2, Business Process Environment, addresses new technologies, productivity, elimination of barriers, social issues, and competitive pressures. Section 3, Business Process Reengineering Concepts, discusses alternative Business Process Reengineering methodologies and related technology. Section 4, Technology trends and innovations, provides guidelines for using new technology.

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